

176095



DEPT. OF TRANSPORTATION
DOCKETS

02 JUN -6 PM 3:35



June 6, 2002

FHWA Docket No. FHWA-2001-11130 - 29

RIN 2125-AE29

"Work Zone Safety"

U.S. Department of Transportation
Transportation, Dockets Management Facility
Room PL-401
400 Seventh Street, SW.
Washington, DC 20590

To Whom It May Concern:

The American Road & Transportation Builders Association is pleased to submit the attached comments to the Federal Highway Administration, FHWA Docket No. FHWA-2001-11130 - *Work Zone Safety*.

The issue of roadway work zone safety is of paramount importance to ARTBA and our members. Our comments come as a result of extensive research and vetting to our members and other related sectors of the industry for their response.

We appreciate the opportunity to provide FHWA with these comments. If you have any questions or would like to discuss these or related matters, please contact:

Bradley Sant
Vice President, Safety & Education
ARTBA
1010 Massachusetts Avenue, NW
Washington, DC 20001
(202) 289-4434
bsant@artba.org

Thank you for your careful consideration of this information.

Best regards,

T. Peter Ruane
President and CEO





AMERICAN ROAD & TRANSPORTATION BUILDERS ASSOCIATION

Comments on the

ADVANCE NOTICE OF PROPOSED RULEMAKING FOR WORK ZONE SAFETY

29 CFR Part 630**(Docket No. FHWA-2001-11130)**

The American Road & Transportation Builders Association (ARTBA) provides Washington representation for the U.S. transportation construction industry. The transportation construction industry generates more than \$200 billion per year in U.S. economic activity and provides employment to more than 2.2 million Americans. ARTBA represents 5,000 firms and public agencies and is the only national association that exclusively represents the collective interests of all sectors of the U.S. transportation construction industry.

In general, ARTBA's comments on FHWA's Advance Notice of Proposed Rulemaking (ANPRM) follow the question and answer format set forth in the *Federal Register* notice of Wednesday, February 6, 2002. For issues of importance to ARTBA and its members that were not addressed in FHWA's questions, additional comments appear at the end of the document.

General Questions

1. *Should there be a National policy to promote improved mobility and safety in highway construction and maintenance? If so, should the National policy be incorporated into the regulation or issued separately as guidance that outlines guidelines and best practices for implementation?*

ARTBA Response:

FHWA should take the lead in developing, issuing, and publishing a national policy on work zone safety. Inasmuch as work zone safety is a crosscutting issue within the jurisdiction of other federal

agencies, FHWA should coordinate the policy, to the extent possible, to ensure it is cohesive and coherent across the federal spectrum. ARTBA strongly recommends that FHWA develop its policy in concert with the Occupational Safety & Health Administration (OSHA), the National Institute for Occupational Safety & Health (NIOSH), the Federal Motor Carrier Safety Administration (FMCSA), and the National Highway Traffic Safety Administration (NHTSA), as well as other relevant agencies.

FHWA policy should recognize, however, that OSHA personnel are not qualified to assess the effectiveness of traffic control devices. The design of traffic control plans should be the responsibility of a registered professional engineer, as they are based on an engineering analysis of mobility and safety. An inspector can only verify compliance with the drawn and sealed drawings. It takes a professional engineer to critique adequacy.

An overall policy should be comprehensive, and therefore would contain broad guidance, articulated in a policy document(s). At this point, ARTBA is hesitant to encourage FHWA to issue regulations, as a well crafted, crosscutting policy is not in place. A first step would be to work for standardized national guidance, developed in concert with industry, to achieve voluntary compliance. The issuance of federal regulations should only be done in specific instances when it is deemed absolutely necessary, as ARTBA generally supports the guidance approach whenever possible.

ARTBA would be strongly opposed to a work zone policy that is enacted unilaterally by FHWA. ARTBA believes that such an action would likely result in conflicts and confusion among federal agencies and the regulated community.

2. *Are the current provisions of 23 CFR 630, subpart J adequate to meet the mobility and safety challenges of road construction and maintenance projects encountered at all stages of project evolution? If they are not adequate, what are the provisions and/or sections that need to be enhanced and/or modified to ensure mobility and safety in and around work zones?*

ARTBA Response:

The current regulations are very limited and do not begin to address the scope of safety and mobility challenges on road construction and maintenance projects. While the existing regulation provides adequate requirements for traffic control plans, other aspects of the regulation are broad and vague. These ambiguities render much of the regulation virtually unenforceable.

The industry would benefit by clearer, more comprehensive guidance to provide uniformity throughout the country on high hazard issues such as:

- a. Entry and exit procedures for supply vehicles (dump trucks) between the traffic space and work space
- b. Staging of equipment and vehicles to provide barriers to traffic and noise
- c. Guidance for traffic control and pedestrian movement within the work area of the work zone ("Internal Traffic Control")

- d. Training and competency guidelines of key personnel dealing with issues such as traffic control devices, flaggers, work zone design, and traffic flow
- e. Worker garment visibility guidance that is upgraded to be in line with industry standards for conspicuity, ensuring that workers are clearly visible to motorists and equipment operators. All workers exposed to moving vehicles and construction equipment should wear appropriate high visibility safety garments within the work zone.
- f. More uniform guidance for maintenance and levels of retroreflectivity on signs, barriers, channelizing devices and pavement markings due to dangers in work zones caused by changed roadway geometry, non-permanent signage, possible hazards from uneven surface conditions, and changing traffic patterns
- g. Encouragement for providing positive barrier protection and separation between workers and traffic, when feasible, during construction including provisions to enable the work space to be expanded during off peak traffic periods

This list is not intended to be comprehensive or prescriptive. Rather, it is offered to provide FHWA with insight into the many areas that impact work zone safety where there is not standardized guidance. Development of specific standards in these areas would prove difficult, in ARTBA's opinion, because such standards would need to recognize the need for engineering flexibility in order to adapt to changing and varying field conditions. Nevertheless, national guidelines, which the states are encouraged to consider and implement, would significantly help in moving the industry forward towards better work zone safety.

3. *Should work zone regulations be stratified to reflect varying levels and durations of risk to road users and workers, and disruptions to traffic? What would be the most appropriate stratification factors (e.g., duration, length, lanes affected, Average Daily Traffic (ADT), road classification, expected capacity reduction, potential impacts on local network and businesses)?*

ARTBA Response:

Clearly, there must be some means to distinguish between the type of work being performed and the comprehensiveness and complexity of regulations covering that work. That is not to say that some types of work are to be exempted, however.

ARTBA recommends a regulatory framework, best demonstrated by a matrix. For example, a long-term project in a high speed, high traffic volume roadway should be subject to more regulation than a short-term project on a rural roadway. If however, that rural roadway has geometry that makes it dangerous, experiences high volumes of traffic during certain times of day, is subject to dangers during night time hours or inclement weather, etc. then more strict regulations should apply.

In other words, ARTBA recommends a regulatory framework that cross compares the type of roadway (high speed, limited access, urban, rural, two lane, etc.) with the type of work and conditions (long-term, short-term utility, weather conditions, time of day, hazard history of

roadway, etc.) Based upon the cross-compared factors, the regulated community can determine the complexity and comprehensiveness of the regulation for protecting workers and motorists during that operation.

4. *Currently, there are several definitions for work zone, as defined by the MUTCD, ANSI D16 (proposed), NCUTLO and NHTSA. These definitions, even though similar in basic structure and implication, differ in length and the degree of detail addressed. Should there be a common National definition for work zone to bring about uniformity? If so, what should the common National definition be?*

ARTBA Response:

It is highly unrealistic to believe that states and local jurisdictions can improve record keeping and reporting of numbers, size, duration, incidents, injuries and fatalities related to work zones while there is not a common, national definition.

It is important for FHWA to take the lead in developing such a definition, in cooperation with other affected public and private organizations.

In ARTBA's experience, the best, simplest way to define a work zone is to limit it to the area between the first advanced warning sign (as required in the MUTCD—not necessarily ITS-type traffic notification signs) and the last “End Construction” sign. This is the “work zone.” In our experience, most definitional problems arise when talking about incidents related to the work zone, such as traffic queues that sometimes stack before the advanced warning sign.

In ARTBA's opinion, reporting forms should have two questions: 1) Did the incident take place “within” a work zone? 2) Was the incident related to work activity in the work zone? In using this approach, we will be able to determine if the work zone activity was related to the reported incident. ARTBA anticipates that there are incidents within a work zone that are unrelated to the construction work, as well as incidents outside the work zone that are related to construction work inside the zone. ARTBA believes that a basic, easy to understand definition, with questions related to that definition would solve many of the ambiguities surrounding work zone definitions and related reporting issues.

5. *How, if at all, are impacts to road users due to road construction and maintenance part of the management and operations considerations that are addressed in transportation plan development?*

ARTBA Response:

The impact on the users due to road construction must be balanced against the need for additional capacity at present, for the duration of the transportation plan, and for the projected future, along with the operating efficiency of the roadway system for those same time periods.

ARTBA believes that simply weighing the road user impact during construction and maintenance operations, without considering short- and long-term operations and capacity needs, will result in a flawed analysis.

The only bearing user impacts should have on immediate construction and maintenance operations (once the need for such programs are established in the transportation plan) should deal with traffic control and/or diversion around the projects. Although issues related to road user delay and mobility are certainly important, work zone safety must always take precedence. Mobility is an important consideration, but not at the sacrifice of safety.

While national research and assistance in this area is critical, state and local officials may be better positioned to address such issues, as road users and owners of adjacent homes and businesses will generally voice their concerns to these officials, not the federal government.

6. *To what extent should the metropolitan and statewide transportation planning processes address crosscutting policy issues that may contribute to increases in project costs (for example, the use of more durable materials, life-cycle costing, complete closure of facilities, information sharing on utilities, etc.)? Is it appropriate to consider the impact of construction and maintenance projects to road users in planning for future roadway improvements at the metropolitan level? At the statewide level? At the corridor level?*

ARTBA Response:

This question must be answered in context with the facility location and demographics. It may be very difficult to develop a regulation to cover this body of issues, given the variety in roadway construction and maintenance projects.

On facilities such as those that carry a large amount of traffic, serve as critical regional links in the network, or are located in areas that make construction expensive and difficult, it is important to consider costs related to user impact, life-cycle, duration of materials, etc. If a jurisdiction is considering bridge or major arterial replacements or renovations, then it may be important to minimize impacts over time.

In regions where there are alternative routes for diversion or volumes that can withstand more frequent maintenance and renovation, then extended life-cycle planning may not be so critical.

Another important factor to consider in this planning process are the safety risks to motorists and workers. There may be roadways that, while their location or volumes do not necessarily lead to longer life-cycle engineering and materials, they may pose safety threats to workers and/or motorists during construction, maintenance or renovation. The safety/risk factor is an important consideration in the planning process.

The real driving force behind this issue, however, will ultimately be governed by budgetary constraints. A regulation that “forces” consideration of these issues, when such options are outside budget constraints, would simply unnecessarily lengthen the planning and design process.

In all instances, when new construction or facility renovation is being undertaken, planners and officials should consider the maintenance and renovation needs that will arise during use and at the end of the planned life cycle. Safety and traffic management concerns should be fixed during present operations so that unnecessary, unsafe, inconvenient, and expensive repairs and renovations can be avoided during the next maintenance and renovation stages.

7. *What data and methods are currently available to address the above considerations? What else would be needed to support such considerations in the metropolitan and statewide transportation planning processes? At the corridor level?*

ARTBA Response:

There are several evaluation instruments available for making such determinations, including measurements and estimations for life-cycle costing, average daily traffic (ADT), motorist delay (QuickZone), historical maintenance costs, traffic speeds, and queuing sensors.

ARTBA is unaware of an established (recognized) method for measuring a jurisdiction’s incident (accident) experience on a certain portion of roadway. As noted previously, accurate safety data would be an important piece of information in the transportation planning process.

8. *How can the FHWA encourage agencies to incorporate the above considerations (life-cycle cost analysis, alternative project scheduling and design strategies, etc.) in the decision-making process for evaluating alternative project designs? What are the most appropriate ways to include these considerations in project design?*

ARTBA Response:

While ARTBA is opposed to extended processes and procedures that would further delay needed construction and maintenance projects, the association does believe that earlier “constructability” reviews at the design stage would allow more segments of the industry to provide feedback to ensure that projects are able to move forward with minimal delays. A regulation that encouraged involvement of the construction segment of the industry during the planning process could alleviate many delays caused by safety concerns, project sequencing, and ease of construction. Early involvement by the construction industry may take place individually or through local, state and national trade associations.

9. *Can user cost be a useful measure to assess alternative means to design and implement work zones? What weight should agencies assign to user costs as a decision-making factor in the alternatives evaluation process? Should analytical tools, such as QuickZone, \16*

QUEWZ-98, \17\ etc., be used for the evaluation of various design alternatives and their estimated impact to the public? What other impact measures (delay, speed, travel time, crashes) should agencies estimate and use for alternatives evaluation?

ARTBA Response:

In a “macro” sense, user cost may be one of many considerations when designing and implementing work zones, but it should not be the predominant factor; nor should excessive time and money be allocated for determining this impact.

There are other considerations that ARTBA believes need more weighty consideration, including direct project costs, project duration, worker & motorist safety, and congestion/delay (if the improvement is not made). Since the user costs (as related to delay during construction) are not borne directly by the developing agency, and the users are the ones who benefit from an improved facility, ARTBA believes that this issue is not one of the more important considerations, in most cases.

There may be some rare instances, when a roadway is adjacent to a business facility that requires minimal delay on the roadways, where the user cost may be more relevant. In these instances, the cost should be handled on a case-by-case basis, and not through federal regulations.

ARTBA believes that it is important to keep a clear perspective on the “user cost” issue, keeping in mind that user costs during construction must be considered in contrast to user costs that are reduced by providing additional capacity.

10. *Given the fact that utility delays have been cited as roadblocks to efficient project delivery, what should be done to address this issue?*

ARTBA Response:

Utility companies should be involved very early in the planning phases of roadway construction, maintenance and renovation, and should be viewed as partners on the project. By informing and involving the utilities early in the program, they may be able to synchronize their planning process with the construction process, and both will realize gains through a coordinated program.

In some instances, where a roadway construction project may be moving forward in advance of the utility’s planned program, the transportation agency may consider providing loans to allow the utility to conduct its work in conjunction with the project, thereby avoiding later delays or utility cuts through new roadways.

This is one area where state DOTs could benefit by federal regulation, giving them more authority to secure cooperation and compliance by utility owners.

11. *The current regulation specifies the requirement for TCPs for work zones, but does not address the issues of sustained traffic management and operations, or traffic enforcement methods and partnerships. Should the scope of TCPs be expanded to include such considerations? What are the most relevant practices or technologies that should be considered in planning for traffic management, enforcement and operations? What are the most appropriate ways to facilitate the inclusion of such considerations in traffic control planning?*

ARTBA Response:

ARTBA believes it is important for work zone TCP's to include elements of public communications and outreach—including real-time information, review and revision (if necessary) of the effectiveness of the TCP, and a means to enforce traffic management in the TCP. The level of detail and the complexity of the expanded TCP should be commensurate with the duration and location of the work.

In many instances of short-term work, work zone signage and traffic control as demonstrated in the MUTCD will be adequate. In other situations, where there are high-traffic volumes, a lot of non-local traffic, etc., it is important to have dynamic information, public outreach efforts, and constant review and revisions to the TCP to ensure that it is using the best means reasonable to manage the traffic through the work zone.

In most instances, however, the state DOT should conduct general public outreach programs that provide generic information and resources for motorists.

Additionally, traffic control planning should be broadened to ensure that worker safety and protection is considered when determining the geometry and traffic control devices in order to ensure that they are protected to the maximum extent reasonable. In this instance, ARTBA recommends that FHWA consider a hierarchy of traffic controls for worker protection, including (in order of protection) total closure, protective barrier, channelizing barrier, drums, cones and tubular devices.

Intelligent Transportation System (ITS) technology should also be utilized and encouraged to control traffic speed and flow in work zones. Especially for high speed roads, interstates, and night work, the use of ITS to slow down the speed of traffic in work zones (along with other methods) would help to reduce injuries and fatalities, reduce incident-related litigation, and reduce the costs associated with this litigation and insurance.

To the extent feasible, guidelines should be adopted outlining procedures for adequate removal of old pavement markings and placement of new, high-quality temporary markings to guide motorists safely through the work zones. Because residual indications of old pavement marks will generally continue to appear, the use of high quality temporary materials should be strongly encouraged to provide adequate motorist guidance.

12. *Should TCPs address the security aspects of construction of critical transportation infrastructure? Should TCPs address the security aspects of work zone activities in the vicinity of critical transportation or other critical infrastructure?*

ARTBA Response:

When appropriate, the TCP should address security aspects, not only of critical transportation infrastructure and linkages, but also concerns of nearby offices, installations, military bases, government facilities, etc. that may be critical to national security.

In this regard, aspects of construction should not only be concerned with security, but also with public safety, such as construction on critical facilities during hurricane season in the East Coast and Gulf states.

Commensurate with the need of the roadway and/or the adjacent facilities, TCPs should have contingency plans to modify construction activities and allow traffic to move through the work zone expeditiously if needed.

Again, the specifics of such considerations will be best addressed on the state and local level. It may be adequate, in this instance, for federal guidelines/regulations to simply indicate that such issues should be considered when developing TCPs.

13. *How should TCPs address ADA requirements?*

ARTBA Response:

In urban areas where the duration of the project is more than two-days, the TCP should provide for safe and convenient passage for pedestrians, cyclists, or other non-motorist transportation needs in line with ADA requirements for permanent facilities.

In addition to ADA considerations, FHWA should provide guidance to state and local jurisdictions about the additional needs of older drivers (reaction time, vision, conspicuity, etc.) as related to work zones.

14. *Should more flexibility be allowed on who develops TCPs--State DOTs, municipalities, contractors or law enforcement agencies--and how should the responsibility for developing TCPs be assigned? Should certification be required for TCP developers? How can the owners and contractors share the roles, risk and rewards in developing TCPs and implementing and operating work zones?*

ARTBA Response:

On larger, more complex projects, prior to the development of the TCP, constructability reviews should be used to get practical input from the designer, the owner/agency, and the constructor. Each of these parties has a unique perspective on how and why the TCP should be developed, including the strength of the design and sequencing of work, the impact on the motoring public and the constructability and schedule of the plan. Once this input has been obtained, the TCP should be developed by a registered professional engineer in the employ or contracted with the owner.

This collaborative process, and development of the TCP, should take place prior to the bid. Sealed drawings should be included in the contract drawings for each contractor to bid upon. It may be useful to provide a bid item for traffic control to compensate the contractor on a monthly basis for the duration of the project.

For liability reasons, many ARTBA members are often reluctant to change a TCP, once developed by the government agency. There are precedents where the contractor has been made liable for accidents occurring in a work zone when the contractor, in good faith, sought and received a modification to the TCP. In other instances, compliance with a government-prescribed TCP has served as a shield from liability. In order for the industry to collaborate—and as a result develop better TCPs—the regulations will have to address the liability issue for participating, private sector parties.

Traffic Control Plans should be developed by certified engineers who have the skills and knowledge to design TCPs which address both the safety needs of the motorist, as well as mitigating the worker safety risks associated with work zone design.

15. *To ensure roadway mobility and safety and work area safety, should mobility and safety audits be required for work zones?*

ARTBA Response:

The best, and most realistic way for audits to occur would be for the contractor to self-certify that the project and traffic control plan are being conducted as required in the contract documents. The frequency and depth of the self-audit, however, should be linked to the hazardous nature of the project. For any project, regular and frequent audits of the traffic control devices should be conducted by the contractor (or subcontractor).

16. *How can we better communicate the anticipated work zone impacts and the associated mitigation measures to the public? Who--the State, local government, contractor, or other agency--should be responsible for informing the public?*

ARTBA Response:

As with our response to other aspects of this ANPRM, the level and detail of a public awareness program is dependent on the impact, size and duration of the project. For those large, long-term, and/or high hazard projects, public communication and outreach should begin while the project is in the design phase to ensure that the public is familiar with the project and its impact on their daily lives.

As the project progresses, it will be up to different parties to communicate to the public, depending on the activity. For those long-term projects, it should be the owner/government's responsibility to provide an overall public communications project, as they will be the only party involved from beginning to end.

During certain construction phases, where the contractor has control over day-to-day operations, that company will be better positioned to provide real-time public communications through changeable message boards and signage concerning changes, delays, etc.

Funding for these communication programs must be clearly defined and published in the contract documents.

In most cases, the communications program should be a coordinated effort between all parties involved in the project, with state and local officials determining the most effective approach. A state DOTs Public Affairs Office may be the most effective in coordinating this effort.

17. *Should projects with substantial disruption include a public communication plan in the project development process? If so, what should such a plan contain?*

ARTBA Response:

Yes. The plan should contain 1) the phases of the public communications program, 2) a coordinated message for each phase, 3) the party responsible for conducting the program at each phase, 4) a process for modifying the program, and 5) a crisis communications component for unforeseen instances.

18. *Should States and local transportation agencies report statistics on the characteristics of work zones (such as number of work zones, size, cost, duration, lanes affected, ADT, road classification, level of disruption and impacts on local network and businesses) to appropriate State or Federal agencies? If so, in what ways do you think this would be beneficial?*

ARTBA Response:

It would be useful for FHWA—or another national organization—to provide a platform for all the statistics noted in the ANPRM, plus relevant accident/incident data, to be reported, compiled and sorted in a standardized format. Such a program would enable interested parties to know how roadway construction programs will impact them, their families and their businesses.

Such information would be very useful to track successful programs, potential high-hazard areas, traveler delay, industry market trends, and type of construction taking place in the various jurisdictions.

It would help motorists make better informed travel plans; help the industry to track the breadth and type of work being conducted; predict and mitigate areas where safety problems may arise; and plan for future transportation needs.

19. *Should States and local transportation agencies report statistics on the mobility performance of work zones? Are typical mobility measures, such as, delay, travel time, traffic volumes, speed and queue lengths appropriate to analyze work zone mobility performance? What are the top three measures that are most appropriate?*

ARTBA Response:

For this question, ARTBA raises the response, what would FHWA do with this data? It seems that the relevant jurisdiction will know whether or not their TCP and work zone mobility efforts are working or not, depending upon these measures (delay, travel time, volumes, etc.). It seems that the local motorists and businesses will be most effective in putting pressure on the agency to improve work zone performance. We do not think FHWA or the federal government is ready to enforce a base level of compliance, and ARTBA strongly opposes restrictions on the allocation of federal funding to the states for surface transportation projects as a means to achieve compliance with other policy objectives.

It would be useful, however, to have a better, more standardized method for reporting work zone related incidents. This would help national, state, and local organizations better understand and mitigate against deaths and injuries in work zones in the future.

20. *Are the currently used measures for safety (typically, crashes, fatalities and injuries) appropriate to analyze work zone performance? If not, what other measures should be considered? Are current mechanisms for collecting this information adequate? If not, how can we improve them?*

ARTBA Response:

ARTBA believes that the largest problem with measures for safety is not necessarily the “categories” (crashes, fatalities and injuries), rather the inconsistency with which the data is collected. It is understandable, to some degree, that the federal government does not want to dictate to the states the manner in which they should collect data concerning incidents related to work zones. (The states are probably not too fond of such mandates either.) On the other hand, it is extremely difficult to craft national programs and assistance when we do not have a clear understanding of what is causing the incidents, nor a standardized means to collect that information.

ARTBA believes that at a minimum, FHWA should determine, through regulation, a target date for a standardized method to collect and report safety performance data on a national basis. FHWA could allow that method to be developed through a consensus proceeding (such as an AASHTO committee, or through the ARTBA/AASHTO/AGC joint committee), with a “threat” that a mandatory system will be implemented through regulation if a national consensus is not achieved by a date certain.

ARTBA believes that until we set a nationally standardized means for defining a work zone, and reporting incidents related to work zones, it will be difficult to reduce crashes, fatalities and injuries, and mitigate the costs associated with them, at a national level.

1. ARTBA Recommendation Number One (Unrelated to Questions in the ANPRM)

Unit Bid Pricing and Model Contract Specifications for Safety—To help ensure roadway construction work zones are as safe as possible, the use of unit bid pricing for safety items in all federally-funded road contracts should be required. Many contractors want to do the “right thing” and set up the safest work zone feasible. Nevertheless, the increased safety measures cost money to buy, set-up properly and maintain. In the low-bid contract award system used in the vast majority of roadway construction projects, the conscientious contractor is likely to be underbid by one who has less regard for worker and motorist safety. ARTBA recommends that model contract specifications, special orders, and unit pricing for safety items be developed and included as guidelines in federally supported roadway construction contracts. This will level the playing field for those contractors who place a high priority on safety.

The TCP should be designed and included in the project plans. Each contractor can bid on the plan as a part of the project. Since the TCP would be a part of the contract and it would be a pay item, all contractual re-dress would be available to the owner to insure compliance and allow enforcement.

For example, barricades should be set up as an all-inclusive pay item by the month for the duration of the project. Special items like electronic message boards or concrete barriers should have separate pay items.

The concept of “owner involvement” in all aspects of safety is an old idea in other areas of construction. Once owner involvement and commitment are well established, safety practices such as contract specifications and unit bid pricing can save the owner (DOT) a significant amount of money.

A commonly referenced report by the Business Roundtable Report, backs this assertion with substantial research. The report A-3, “*Improving Construction Safety Performance: A Construction Industry Cost Effectiveness Project Report*” (1982, Reprinted 1991), makes the following observations: “The primary purpose (of the A-3) report is to demonstrate that owners have, in addition to their moral commitment, an economic incentive to help reduce the number of accidents that occur on their construction projects.” The report goes on to say that reasonable reductions in frequency and severity (of accidents) would lower construction project costs by as much as 8% of construction labor payroll.

Some of the specific recommendations include:

- Provide safety & health guidelines the contractor must follow;
- Require use of permit systems for potentially hazardous activities;
- Require the contractor to designate a responsible supervisor to coordinate safety on the site;
- Discuss safety at owner-contractor meetings;
- Conduct safety audits during construction;
- Require prompt reporting and full investigation of accidents;
- Encourage training.

2. ARTBA Recommendation Number Two (Unrelated to Questions in the ANPRM)

Contractor Incentive Programs—ARTBA believes that incentive programs are an effective means to encourage improved safety and health performance on a job site. FHWA should create special provisions that states can incorporate into federally supported roadway construction projects that allow economic rewards for contractors who meet specified performance measures related to both traffic and worker safety and health. FHWA should also encourage state DOTs to incorporate such incentives in all state supported roadway construction projects.

The extra planning that is required to implement a good safety and health program can result in better overall project planning, thereby creating better-organized and efficient projects. In time, by encouraging contractors to plan and work more safely, the industry standard can be raised to a new level that will not only improve the health and safety of workers and motorists, but also lead to increased project savings.

Appendix A

Deficiencies in the Reporting Classification for Occupational Injuries Related to "Work Zone" Activities

This issue relates to our need as an industry to monitor fatalities in "work zones" and to utilize meaningful trends in "occupational" accident data for employees working in "work zone" locations as a tool to develop safety initiatives to reduce worker injuries.

Good data does exist for specific SIC industries reported by private firms. The selected SIC represents the classification most closely describing the firms business - often the selected SIC classification is in industry segments not representative of work zone hazards.

The most relevant data exists for SIC 16; Heavy construction, except building the reported statistics would be useful for safety managers in comparing the accident statistics with industry data:

Heavy construction, except building	16
Highway and street construction	161
Heavy construction, except highway.....	162
Bridge, tunnel, and elevated highway	1622
Water, sewer, and utility lines	1623
Heavy construction, n.e.c.	1629

However, painting contractors which only apply lane marking materials are classified in SIC 172 "Painting and paper hanging" which is an almost meaningless classification for the use of comparing a companies work zone injury records with industry data. The following list includes other examples of SIC classified industries that commonly employ workers in "work zones". Added to this list are the many classifications of "public" employees working on streets and roadways. Thus, the numbers frequently used to describe the extent of the injury problem and risk exposure of employees of contractors in work zones is "understated".

Major Group 17: *Construction Special Trade Contractors*

Industry Group 172: *Painting And Paper Hanging*

- Bridge painting-contractors
- Traffic lane painting-contractors

Industry Group 179: *Miscellaneous Special Trade Contractors -*

- Fence construction-contractors
- Erection and dismantling of forms for poured concrete-contractors

Industry Group 173: *Electrical Work*

- Cable television hookup-contractors
- Electrical repair at site of construction-contractors

Electronic control system installation-contractors (example: intersection signal controllers)
Highway lighting and electrical signal construction-contractors

Industry Group 177: *Concrete Work*

1771 Concrete Work

Asphalting of private driveways and private parking areas-contractors
Blacktop work: private driveways and private parking
Concrete finishers-contractors
Concrete work: private driveways, sidewalks, and parking areas-
Culvert construction-contractors
Curb construction-contractors
Grouting work-contractors
Parking lot construction-contractors
Sidewalk construction, except public-contractors

Industry Group 179: *Miscellaneous Special Trade Contractors*

1795 Wrecking and Demolition Work

Concrete breaking for streets and highways-contractors

Background of the Census of Fatal Occupational Injuries (CFOI)

To improve the analysis of fatality data categorized by SIC classifications, (cause, and type of injury, etc.); the Bureau of Labor Statistics (BLS) created a Census of Fatal Occupational Injuries (CFOI) in 1992. This annual survey is a useful tool for company safety managers, safety advocates, and industry associations to evaluate the fatalities attributed to other measures such as the "location" of the employee at the time of the fatal injury.

The Census of Fatal Occupational Injuries includes data for all fatal work injuries, whether they are covered by OSHA or other federal or state agencies or are outside the scope of regulatory coverage. Thus, any comparison between the BLS fatality census counts and those released by other agencies should take into account the different coverage requirements and definitions being used.

Several federal and state agencies have jurisdiction over workplace safety and health. OSHA and affiliated agencies in states with approved safety programs cover the largest portion of the nation's workers. However, injuries and illnesses occurring in certain industries or activities, such as coal, metal, and nonmetal mining and highway, water, rail, and air transportation, are excluded from OSHA coverage because they are covered by other federal agencies, such as the Mine Safety and Health Administration and various agencies within the Department of Transportation. Fatalities occurring in activities regulated by federal agencies other than OSHA accounted for about 15 percent of the fatal work injuries in 2000.

Fatalities occurring among several other groups of workers are generally not covered by any federal or state agencies. These groups include self-employed and unpaid family workers, which accounted for about 20 percent of the fatalities; laborers on small farms, accounting for about 1 percent of the fatalities; and state and local government employees in states without OSHA

approved safety programs, which accounted for about 4 percent. (Approximately one-half of the states have approved OSHA safety programs, which cover state and local government employees.)

For a fatality to be included in CFOI, the decedent must have been employed (that is, working for pay, compensation, or profit) at the time of the event, engaged in a legal work activity, and present at the site of the incident as a job requirement. These criteria are generally broader than those used by Federal and State agencies administering specific laws and regulations. Fatalities that occur during a person's commute to or from work are excluded from the census counts.

Weakness of CFOI data relating to "site or location" classification:

The current classification for coding locations is based on the OIICS classification system developed by ANSI. The following classifications illustrate the issues connected with "work zones". In reviewing the classification structure, it is easy to see the common misclassification of accidents. If the accident is within the "work zone activity area" is it classified in the 40 Series for Industrial places and premises (#47 for construction sites) or does the recorder classify within the 60 series for street and highway locations? Would the accident investigator understand that #65 (road construction) includes "non-public travel locations within work zone activity area"? It is my position that we are leaving too much to chance in classification under this system and we are missing considerable data of work zone accidents.

60	<u>Street and highway</u>
61	Street and highway, unspecified
62	Interstate, freeway, or expressway
63	Other state or U.S. highway
64	Local road or street
65	Road construction
66	Street, highway, road, elsewhere classified
40	<u>Industrial place and premises</u>
41	
42	
43	
44	
45	
46	
47	Construction site (includes major renovations)
48	
49	

The following input from Stephanie Pratt (Epidemiologist, NIOSH Division of Safety Research) clearly summarizes the difficulty of researchers analyzing the data under the current classification system:

"I'm following up on our conversation about how BLS classifies work zone fatalities. Below are suggestions and rationale I provided through our comment process, but it would be great if other interested parties could send BLS a similar message.

"The essence of my comment was that Code 65 for "road construction" should not have been added to the location codes -- doing this means that important information on the type of road is simply not collected for these fatalities. Further, the code isn't necessarily accurate when the coding is compared with the content of the case narrative. This code, added in 1995, makes it more difficult than before to report type-of-road info for work zone fatalities (and it also affects the quality of type-of-road information throughout the CFOI file).

"I recommended that information on 'road construction or maintenance zone' be retained in the OIICS codes, but that it be incorporated into the event codes, perhaps as an additional 4-digit category. For example, it could be added under Code 43 for pedestrian incidents, as well as under other categories pertaining to highway/non-highway vehicular crashes. (Code 43 now distinguishes only incidents on the roadway, the roadside, and off the roadway, so there is plenty of opportunity to capture further detail.)

"A less desirable alternative would be to move this item from the group of location codes that addresses streets and highways to another place in the location codes, possibly among codes 40-49 (Industrial places and premises).

"The disadvantage to this is that a number of work zone fatalities are already misclassified under code 47 (construction site), so creating a "work zone" code under this heading could result in more confusion.

"For your reference, I will fax you a single page that shows the location codes now used in CFOI.

"BLS is now reviewing the location codes used in CFOI, so this is a great opportunity to offer input. You may of course have additional ideas about how the problem might best be addressed, but I thought it would be helpful for you to be aware of the arguments I used. Here is the person to whom comments should be addressed:

*Scott Richardson
Bureau of Labor Statistics
2 Massachusetts Ave., Room 3175
Washington, DC 20212-0001
(202) 691-6165"*

*Stephanie Pratt
Epidemiologist, Special Studies Section
Surveillance and Field Investigations Branch
Division of Safety Research
National Institute for Occupational Safety and Health
1095 Willowdale Road, Mailstop 1808
Morgantown, WV 26505*

*Phone: (304) 285-5992
Fax: (304) 285-5774
E-mail: sgp2@cdc.gov or SPratt@cdc.gov*

Appendix B

Comments on Draft ARTBA Response by ARTBA Members

ADVANCE NOTICE OF PROPOSED RULE MAKING FOR WORK ZONE SAFETY

**29 CFR Part 630
(Docket No. FHWA-2001-11130)**

The American Road & Transportation Builders Association (ARTBA) provides Washington representation for the U.S. transportation construction industry. The transportation construction industry generates more than \$200 billion per year in U.S. economic activity and provides employment to more than 2.2 million Americans. ARTBA represents 5,000 firms and public agencies and is the only national association that exclusively represents the collective interests of all sectors of the U.S. transportation construction industry.

In general, ARTBA's comments on FHWA's Advance Notice of Proposed Rulemaking (ANPRM) follow the question and answer format set forth in the Federal Register Notice of Wednesday, February 6, 2002. For issues of importance to ARTBA and its members that were not addressed in FHWA's questions, additional comments appear at the end of the document.

AGC of Texas comments are shown in RED ITALICS.

General Questions

1. *Should there be a National policy to promote improved mobility and safety in highway construction and maintenance? If so, should the National policy be incorporated into the regulation or issued separately as guidance that outlines guidelines and best practices for implementation?*

ARTBA Response:

FHWA should take the lead in developing, issuing, and publishing a national policy on work zone safety. Inasmuch as work zone safety is a crosscutting issue within the jurisdiction of other federal agencies, FHWA should coordinate the policy, to the extent possible, to ensure it is cohesive and

DRAFT

coherent across the federal spectrum. ARTBA strongly recommends that FHWA develop its policy in concert with the Occupational Safety & Health Administration (OSHA), the National Institute for Occupational Safety & Health (NIOSH), the Federal Motor Carrier Safety Administration (FMCSA), and the National Highway Traffic Safety Administration (NHTSA), as well as other relevant agencies.

The policy should be comprehensive, and therefore would contain broad guidance, articulated in a policy document(s), as well as specific regulations implemented through appropriate rulemaking within the respective agencies of jurisdiction.

ARTBA would be strongly opposed to a work zone policy that is enacted unilaterally by FHWA. ARTBA believes that such an action would likely result in conflicts and confusion among federal agencies and the regulated community.

This is a tremendous opportunity to clarify and set policy for an emerging issue. FHWA policy should recognize that OSHA personnel are NOT qualified to assess effectiveness of traffic control devices. The design of traffic control plans should be the responsibility of a registered professional engineer. An inspector can only verify compliance with the drawn and sealed drawings. It takes a professional engineer to critique adequacy.

Industry has been pushing for the MUTCD to do more for the protection of workers. This change would in our opinion give OSHA oversight authority on the matter. Traffic control decisions are made based on an engineering analysis of mobility and as safety. Due to this complexity, OSHA should NOT be involved in the assessment and inspection of TCP's. Enforcement of such standards should fall to the DOT's, other Owner Agencies or the engineering representatives.

Additionally, NIOSH has produced a research document that indicates WZ traffic control devices are needed within the work zone to control the contractor's equipment, vehicles and workers on foot. This is absolutely unacceptable. Vendors of WZ safety products and subcontractors are trying to create a market through regulation. This resembles the iron workers union pushing for field installation of shear studs in OSHA regulation.

2. *Are the current provisions of 23 CFR 630, subpart J adequate to meet the mobility and safety challenges of road construction and maintenance projects encountered at all stages of project evolution? If they are not adequate, what are the provisions and/or sections that need to be enhanced and/or modified to ensure mobility and safety in and around work zones?*

ARTBA Response:

The current regulations are not adequate to meet the safety and mobility needs of road construction and maintenance projects. While the existing regulation provides adequate requirements for traffic control plans, other aspects of the regulations are broad and vague. These ambiguities render much of the regulation virtually unenforceable.

The industry would benefit by clearer, more comprehensive standards to provide uniformity throughout the country on high hazard issues such as:

- a. Entry and exit procedures for supply vehicles (dump trucks) between the traffic space and work space

DRAFT

- b. Staging of equipment and vehicles to provide barriers to traffic and noise
- c. Requirements for traffic control and pedestrian movement within the work area of the work zone
- d. Training and competencies of key personnel dealing with issues such as traffic control devices, flaggers, work zone design, and traffic flow

The suggestions are TOO specific. Design guidelines and considerations should be presented. Prescriptive requirements eliminate engineering flexibility to deal with changing/varying field conditions.

3. *Should work zone regulations be stratified to reflect varying levels and durations of risk to road users and workers, and disruptions to traffic? What would be the most appropriate stratification factors (e.g., duration, length, lanes affected, Average Daily Traffic (ADT), road classification, expected capacity reduction, potential impacts on local network and businesses)?*

ARTBA Response:

Clearly, there must be some means to distinguish between the type of work being performed and the comprehensiveness and complexity of regulations covering that work. That is not to say that some types of work are to be exempted, however.

ARTBA recommends a regulatory framework, best demonstrated by a matrix. For example, a long-term project in a high speed, high traffic volume roadway should be subject to more regulation than a short-term project on a rural roadway. If however, that rural roadway has geometry that makes it dangerous, experiences high volumes of traffic during certain times of day, is subject to dangers during night time hours or inclement weather, etc. then more strict regulations should apply.

In other words, ARTBA recommends a regulatory framework that cross compares the type roadway (high speed, limited access, urban, rural, two lane, etc.) with the type of work and conditions (long-term, short-term utility, weather conditions, time of day, hazard history of roadway, etc.) Based upon the cross-compared factors, the regulated community can determine the complexity and comprehensiveness of the regulation for protecting workers and motorists during that operation.

We agree.

4. *Currently, there are several definitions for work zone, as defined by the MUTCD, ANSI D16 (proposed), NCUTLO and NHTSA. These definitions, even though similar in basic structure and implication, differ in length and the degree of detail addressed. Should there be a common National definition for work zone to bring about uniformity? If so, what should the common National definition be?*

ARTBA Response:

DRAFT

It is highly unrealistic to believe that states and local jurisdictions can improve record keeping and reporting of numbers, size, duration, incidents, injuries and fatalities related to work zones while there is not a common, national definition.

It is important for FHWA to take the lead in developing such a definition, in cooperation with other affected public and private organizations.

In ARTBA's experience, the best, simplest way to define a work zone is to limit it to the area between the first advanced warning sign (as required in the MUTCD—not necessarily ITS-type traffic notification signs) and the last "End Construction" sign. This is the "work zone." In our experience, most definitional problems arise when talking about incidents related to the work zone, such as traffic cues that sometimes stack before the advanced warning sign.

In ARTBA's opinion, reporting forms should have two questions: 1) Did the incident take place "within" a work zone? 2) Was the incident related to work activity in the work zone? In using this approach, we will be able to determine if the work zone activity was related to the reported incident. ARTBA anticipates that there are incidents within a work zone that are unrelated to the construction work, as well as incidents outside the work zone that are related to construction work inside the zone. ARTBA believes that a basic, easy to understand definition, with questions related to that definition would solve many of the ambiguities surrounding work zone definitions and related reporting issues.

We agree.

5. *How, if at all, are impacts to road users due to road construction and maintenance part of the management and operations considerations that are addressed in transportation plan development?*

ARTBA Response:

The impact on the users due to road construction must be balanced against the need for additional capacity at present, for the duration of the transportation plan, and for the projected future, along with the operating efficiency of the roadway system for those same time periods.

ARTBA believes that simply weighing the road user impact during construction and maintenance operations, without considering short- and long-term operations and capacity needs, will result in a flawed analysis.

The only bearing user impacts should have on immediate construction and maintenance operations (once the need for such programs are established in the transportation plan) should deal with traffic control and/or diversion around the projects.

Another word for "road user delay" is mobility. Mobility is most certainly a consideration but not at the sacrifice of work zone safety. This point must be stressed clearly.

6. *To what extent should the metropolitan and statewide transportation planning processes address crosscutting policy issues that may contribute to increases in project costs (for example, the use of more durable materials, life-cycle costing, complete closure of facilities,*

DRAFT

information sharing on utilities, etc.)? Is it appropriate to consider the impact of construction and maintenance projects to road users in planning for future roadway improvements at the metropolitan level? At the statewide level? At the corridor level?

ARTBA Response:

This question must be answered in context with the facility location and demographics. It may be very difficult to develop a regulation to cover this body of issues, given the variety in roadway construction and maintenance projects.

On facilities such as those that carry a large amount of traffic, serve as critical regional links in the network, or are located in areas that make construction expensive and difficult, it is important to consider costs related user impact, life-cycle, duration of materials, etc. If a jurisdiction is considering bridge or major arterial replacements or renovations, then it is important minimize impacts overtime, and consider 50-year+ life cycles.

In regions where there are alternative routes for diversion or volumes that can withstand more frequent maintenance and renovation, then extended life-cycle planning may not be so critical.

Another important factor to consider in this planning process are the safety risks to motorists and workers. There may be roadways that, while their location or volumes do not necessarily lead to longer life-cycle engineering and materials, they may pose safety threats to workers and/or motorists during construction, maintenance or renovation. The safety/risk factor is an important consideration in the planning process.

In all instances, when new construction or facility renovation is being undertaken, planners and officials should consider the maintenance and renovation needs that will arise during use and at the end of the planned life cycle. Safety and traffic management concerns should be fixed during present operations so that unnecessary unsafe, inconvenient, and expensive repairs and renovations can be avoided during the next maintenance and renovation stages.

We agree but it is our experience that this already occurs. The final decision ultimately is made based on budgetary constraints. Forcing consideration of options that are known to be outside budget constraints (i.e. 50+ year life) just unnecessarily lengthens the planning and design process.

Furthermore, this is NOT a work zone safety issue but a mobility issue. It is a strategy to hopefully reduce the number of work zones, which minimizes future traffic disruptions. It is alleged to reduce future exposure of construction workers to WZ hazards and subsequently being framed as a WZ safety consideration.

7. *What data and methods are currently available to address the above considerations? What else would be needed to support such considerations in the metropolitan and statewide transportation planning processes? At the corridor level?*

ARTBA Response:

DRAFT

There are several evaluation instruments available for making such determinations, including measurements and estimations for life-cycle costing, average daily traffic (ADT), motorist delay (QuickZone), traffic speeds, and queuing sensors.

You should include known historical maintenance costs.

ARTBA is unaware of an established (recognized) method for measuring a jurisdiction's incident (accident) experience on a certain portion of roadway. As noted previous, accurate safety data would be an important piece of information in the transportation planning process.

8. *How can the FHWA encourage agencies to incorporate the above considerations (life-cycle cost analysis, alternative project scheduling and design strategies, etc.) in the decision-making process for evaluating alternative project designs? What are the most appropriate ways to include these considerations in project design?*

ARTBA Response:

While ARTBA is opposed to extended processes and procedures that would further delay needed construction and maintenance projects, the association does believe that earlier "constructability" reviews at the design stage would allow more segments of the industry to provide feedback to ensure that projects are able to move forward with minimal delays. A regulation that encouraged involvement of the construction segment of the industry during the planning process could alleviate many delays caused by safety concerns, project sequencing, and ease of construction. ~~Because the industry still relies heavily on the "low bid" system for competitive pricing, e~~ Early involvement by the construction industry may take place *individually or through local, state and national trade associations.* ~~who do not stand to benefit from pre-bid information that will constrain competitive contractors.~~

Constructability reviews by contractors do not constrain competition. DOT's should be encouraged to use them either by individual contractors or through a trade association.

The reference to the "low bid" system is contextually objectionable. It represents that the "low bid" system is flawed. We suggest changing the wording as shown above.

Once the agency has made a determination for incorporating the relevant design, strategies and practices during the planning process, they should be required to justify their decisions through a report available to the public for review.

Justify their decisions? Public comment processes are used in all major investment studies. Their decisions are explained to the public. The way this is stated we find offensive.

9. *Can user cost be a useful measure to assess alternative means to design and implement work zones? What weight should agencies assign to user costs as a decision-making factor in the alternatives evaluation process? Should analytical tools, such as QuickZone, \16\ QUEWZ-98, \17\ etc., be used for the evaluation of various design alternatives and their estimated impact to the public? What other impact measures (delay, speed, travel time, crashes) should agencies estimate and use for alternatives evaluation?*

DRAFT

ARTBA Response:

In a “macro” sense, user cost may be one of many considerations when designing and implementing work zones, but it should not be the predominant factor; nor should excessive time and money be allocated for determining this impact.

We agree completely but in the next paragraph you refute your own argument by stating that “other” considerations are more important...congestion and delays are “user costs”. We must clarify the cause of the delays. They are concerned over “user costs” associated with a work zone. We must focus on “user costs” associated with any delay in providing added capacity to a facility.

There are other considerations that ARTBA believes need more weighty consideration, including direct project costs, project duration, worker & motorist safety, congestion and delay. Since the user costs are not borne directly by the developing agency, and the users are the ones who benefit from an improved facility, ARTBA believes that this issue is not one of the more important considerations, in most cases.

There may be some rare instances, when a roadway is adjacent to a business facility that requires minimal delay on the roadways, where the user cost may be more relevant. In these instances, the cost should be handled on a case-by-case basis, and not through federal regulations.

10. *Given the fact that utility delays have been cited as roadblocks to efficient project delivery, what should be done to address this issue?*

ARTBA Response:

Utility companies should be involved very early in the planning phases of roadway construction, maintenance and renovation, and should be viewed as partners on the project. By informing and involving the utilities early in the program, they may be able to synchronize their planning process to the construction process, and both will realize gains through a coordinated program.

In some instances, where a roadway construction project may be moving forward in advance of the utility’s planned program, the transportation agency may consider providing loans or other forms of financial assistance to allow the utility to conduct its work in conjunction with the project, thereby avoiding later delays or utility cuts through new roadways.

DOT’s need a hammer in this process. The utility owners have abused the nation’s DOT without repercussion. The DOT’s need regulations that can provide them the authority to force cooperation and compliance. The DOT’s need the ability to recoup damages incurred by the failure of a utility owner to act in a timely fashion.

11. *The current regulation specifies the requirement for TCPs for work zones, but does not address the issues of sustained traffic management and operations, or traffic enforcement methods and partnerships. Should the scope of TCPs be expanded to include such considerations? What are the most relevant practices or technologies that should be considered in planning for traffic management, enforcement and operations? What are the*

DRAFT

most appropriate ways to facilitate the inclusion of such considerations in traffic control planning?

ARTBA Response:

ARTBA believes it is important for work zone TCP's to include elements of public communications and outreach—including real-time information, review and revision (if necessary) of the effectiveness of the TCP, and a means to enforce traffic management in the TCP. The level of detail and the complexity of the expanded should be commensurate with the duration and location of the work.

In many instances of short-term work, work zone signage and traffic control as demonstrated in the MUTCD will be adequate. In other situations, where there are high-traffic volumes, a lot of non-local traffic, etc., it is important to have dynamic information, public outreach efforts, and constant review and revisions to the TCP to ensure that it is using the best means reasonable to manage the traffic through the work zone.

Public outreach programs should not be project specific unless it a very unique, complex situation. The DOT's should have a standing outreach program that provides one-stop information for all transportation advisories.

Additionally, traffic control planning should be broadened to ensure that work safety and protection is considered when determining the geometry and traffic control devices to ensure that they are protected to the maximum extent reasonable. In this instance, ARTBA recommends that FHWA consider a hierarchy of traffic controls for worker protection, including (in order of protection) total closure, protective barrier, channelizing barrier, drums, cones and tubular devices.

To the extent feasible, clear regulations should be adopted outlining procedures for clear removal of old pavement markings and placement of new markings to safety guide motorists through the work zones.

The focus on pavement markings is completely backwards. We should not emphasize the removal of old marks. Marking removal defaces the pavement. There will always be residual indications of the pavement marks. We should focus on the installation of HIGH QUALITY temporary marks. This is where the DOT's fail. There is a mindset that temporary marks are not as important as permanent. This leads to the decision to use low quality, cheaper products for WZ pavement marks. We make the argument that because of the hazards that exist and the motorist is being asked to do something different, the temporary marks should be BETTER than the permanent.

12. *Should TCPs address the security aspects of construction of critical transportation infrastructure? Should TCPs address the security aspects of work zone activities in the vicinity of critical transportation or other critical infrastructure?*

ARTBA Response:

When appropriate, the TCP should address security aspects, not only of critical transportation infrastructure and linkages, but also concerns of nearby offices, installations, military bases, government facilities, etc. that may be critical to national security.

DRAFT

In this regard, aspects of construction should not only be concerned with security, but also with public safety, such as construction on critical facilities during hurricane season in the East Coast and Gulf states.

Commensurate with the need of the roadway and/or the adjacent facilities, TCPs should have contingency plans to modify construction activities and allow traffic to move through the work zone expeditiously if needed.

We agree when security concerns exist.

13. *How should TCPs address ADA requirements?*

ARTBA Response:

In urban areas where the duration of the project is more than two-days, the TCP should provide for safe and convenience passage for pedestrians, cyclists, or other non-motorist transportation needs in line with ADA requirements for permanent facilities.

The first priority is to keep non-motorists out of the work zone if at all possible. Alternate paths should be clearly marked. When this is not possible and access must be granted, safety issues must be clearly addressed.

In all circumstances, worker garment visibility regulations should be upgraded to be in line with industry standards for conspicuity, ensuring that workers are clearly visible to motorists and equipment operators.

Because of the dangers in work zones caused by changed roadway geometry, non-permanent signage, possible hazards from uneven surface conditions, and changing traffic patterns, FHWA should consider more stringent standards for maintenance and levels of retroreflectivity on signs, barriers, channelizing devices and pavement markings.

The visibility of worker garments and device reflectivity addresses the aging driver. It is appropriate to address this issue here but this point should be clearly stated.

14. *Should more flexibility be allowed on who develops TCPs--State DOTs, municipalities, contractors or law enforcement agencies--and how should the responsibility for developing TCPs be assigned? Should certification be required for TCP developers? How can the owners and contractors share the roles, risk and rewards in developing TCPs and implementing and operating work zones?*

ARTBA Response:

In many cases, the development of the TCP should be a collaborative process between the designer, the owner/agency, and the constructor. Each of these parties has a unique perspective on how and why the TCP should be developed, including the strength of the design and sequencing of work, the impact on the motoring public and the constructability and schedule of the plan.

DRAFT

No. The TCP should be developed by a registered professional engineer in the employ of or contracted with the Owner. Constructability reviews by industry should be used to get practical input into the process.

As noted previously, on a “low-bid” project, an association, consultant, or non-bidding contractor may represent the contractor group, as the TCP is often developed before the bid stage. Another approach would be to negotiate the TCP after the contract is awarded.

TCP should be designed prior to bid. Drawings sealed by a licensed professional engineer should be included in the contract drawings for each contractor to bid upon. Provided a bid item for traffic control to compensate the contractor on a monthly basis for the duration of the project.

Certification of TCP designers would not be necessary if a consultative process were to be used. Some type of certification or “competent person” requirements may be useful for large, high-visibility, high-cost, high-volume projects.

The TCP designer should be a licensed professional engineer.

For liability reasons, many ARTBA members have expressed concerns that they are often reluctant to change a TCP, once developed by the government agency, for liability reasons. There are precedents where the contractor has been made liable for accidents occurring in a work zone when the contractor, in good faith, sought and received a modification to the TCP. In other instances, compliance with a government-prescribed TCP has served as a shield from liability. In order for the industry to collaborate—and as a result develop better TCPs—the regulations will have to address the liability issue for participating, private sector parties.

Improvements to TCP's are often not pursued because of liability reasons. We agree.

15. *To ensure roadway mobility and safety and work area safety, should mobility and safety audits be required for work zones?*

ARTBA Response:

Yes. The frequency and depth of the audit, however, should be linked to the hazardous nature of the project. For any project, regular and frequent audits of the traffic control devices should be conducted. If a person is competent (and this regulation should determine what “competent” means), the constructor need not have “3rd party” or “independent” audits. A competent person on staff should be able to conduct the audit.

This audit procedure should be developed through, or in conjunction with the TCP.

No. Promote standardized accident reporting. Monitor work zone accidents.

Owner's designated engineer to make changes as appropriate. However, since most contractors hold their owners harmless, changes made to a TCP can be construed as an admission of design fault and be cause for large awards especially in the case of a catastrophic accident.

No audits for mobility.

DRAFT

Changes to a TCP may represent significant changes in the character of the work. As such, changed conditions exist and a change order and appropriate compensation may be appropriate.

16. *How can we better communicate the anticipated work zone impacts and the associated mitigation measures to the public? Who--the State, local government, contractor, or other agency--should be responsible for informing the public?*

ARTBA Response:

As with our response to other aspects of this ANPRM, the level and detail of a public awareness program is dependent on the impact, size and duration of the project. For those large, long-term, and/or high hazard projects, public communication and outreach should begin while the project is in the design phase to ensure that the public is familiar with the project and its impact on their daily lives.

As the project progresses, it will be up to different parties to communicate to the public, depending on the activity. For those long-term projects, it should be the owner/government's responsibility to provide an overall public communications project, as they will be the only party involved from beginning to end.

During certain construction phases, where the contractor has control over day-to-day operations, that company will be better positioned to provide real-time public communications through changeable message boards and signage concerning changes, delays, etc.

Funding for these communication programs must be clearly defined and published in the contract documents.

In most cases, the communications program should be a coordinated effort between all parties involved in the project.

During the construction phase, the DOT's Public Affair Office should handle all public outreach. The message to the public should be consistent and up-to-date. The PAO would provide one-stop information source for all traffic advisories.

Only in the most complex projects with significant traffic impacts should there be special public outreach establish. This should be handled on a case-by-case basis.

17. *Should projects with substantial disruption include a public communication plan in the project development process? If so, what should such a plan contain?*

ARTBA Response:

Yes. The plan should contain 1) the phases of the public communications program, 2) a coordinated message for each phase, 3) the party responsible for conducting the program at each phase, 4) a process for modifying the program, and 5) a crisis communications component for unforeseen instances.

This is okay.

DRAFT

18. *Should States and local transportation agencies report statistics on the characteristics of work zones (such as number of work zones, size, cost, duration, lanes affected, ADT, road classification, level of disruption and impacts on local network and businesses) to appropriate State or Federal agencies? If so, in what ways do you think this would be beneficial?*

ARTBA Response:

It would be useful for FHWA—or another national organization—to provide a platform where all the statistics noted in the ANPRM, plus relevant accident/incident data, to be reported, compiled and sorted in a standardized format. Such a program would enable interested parties to know how roadway construction programs will impact them, their families and their businesses.

Such information would be very useful to track successful programs, potential high-hazards areas, traveler delay, industry market trends, and type of construction taking place in the various jurisdictions.

It would help motorists make better informed travel plans; help the industry to track the breadth and type of work being conducted; predict and mitigate areas where safety problems may arise; and plan for future transportation needs.

Though we agree with the remarks, this does not answer the mail. Creating requirements for additional reporting to agencies creates an unnecessary administrative burden.

19. *Should States and local transportation agencies report statistics on the mobility performance of work zones? Are typical mobility measures, such as, delay, travel time, traffic volumes, speed and queue lengths appropriate to analyze work zone mobility performance? What are the top three measures that are most appropriate?*

ARTBA Response:

For this question, ARTBA raises the response, what would FHWA do with this data? It seems that the relevant jurisdiction will know whether or not their TCP and work zone mobility efforts are working or not, depending upon these measures (delay, travel time, volumes, etc.). It seems that the local motorists and businesses will be most effective in putting pressure on the agency to improve work zone performance. We do not think FHWA or the federal government is ready to enforce a base level of compliance, and ARTBA strongly opposes restrictions on the allocation of federal funding to the states for surface transportation projects as a means to achieve compliance with other policy objectives.

It would be useful, however, to have a better, more standardized method for reporting work zone related incidents. This would help national, state, and local organizations better understand and mitigate against deaths and injuries in work zones in the future.

This information should be collected by the controlling agencies. It should be used to evaluate the performance of various traffic control designs for future reference. Reporting is unnecessary.

20. *Are the currently used measures for safety (typically, crashes, fatalities and injuries) appropriate to analyze work zone performance? If not, what other measures should be*

DRAFT

considered? Are current mechanisms for collecting this information adequate? If not, how can we improve them?

ARTBA Response:

ARTBA believes that the largest problem with measures for safety is not necessarily the “categories” (crashes, fatalities and injuries), rather the inconsistency with which the data is collected. It is understandable, to some degree, that the federal government does not want to dictate to the states the manner in which they should collect data concerning incidents related to work zones. (The states are probably not too fond of such mandates either.) On the other hand, it is extremely difficult to craft national programs and assistance when we do not have a clear understanding of what is causing the incidents, nor a standardized means to collect that information.

ARTBA believes that at a minimum, FHWA should determine, through regulation, a target date for a standardized method to collect and report safety performance data on a national basis. FHWA could allow that method to be developed through a consensus proceeding (such as an AASHTO committee, or through the ARTBA/AASHTO/AGC joint committee), with a “threat” that a mandatory system will be implemented through regulation if a national consensus is not achieved by a date certain.

ARTBA believes that until we set a nationally standardized means for defining a work zone, and reporting incidents related to work zones, it will be difficult to reduce crashes, fatalities and injuries, and mitigate the costs associated with them, at a national level.

We agree.

1. ARTBA Recommendation Number One (Unrelated to Questions in the ANPRM)

Unit Bid Pricing and Model Contract Specifications for Safety—To help ensure roadway construction work zones are as safe as possible, the use of unit bid pricing for safety items in all federally-funded road contracts should be required. Many contractors want to do the “right thing” and set up the safest work zone feasible. Nevertheless, the increased safety measures cost money to buy, set-up properly and maintain. In the low bid contract award system used in the vast majority of roadway construction projects, the conscientious contractor is likely to be underbid by one who has less regard for worker and motorist safety. ARTBA recommends that model contract specifications, special orders, and unit pricing for safety items be developed and included in federally supported roadway construction contracts. This will level the playing field for those contractors who place a high priority on safety.

We agree that work zone safety/traffic control should be a pay item. Barricades should be set up as an all-inclusive pay item by the month for the duration of the project. Special items like electronic message boards or concrete barriers should have separate pay items.

TCP should be designed and included in the project plans. Each contractor can bid on the plan as a part of the project. Since the TCP would be a part of the contract and it would be a pay item, all contractual re-dress would be available to the Owner to insure compliance and allow enforcement.

DRAFT

The concept of “owner involvement” in all aspects of safety is an old idea in other areas of construction. Once owner involvement and commitment are well established, safety practices such as contract specifications and unit bid pricing can save the owner (DOT) a significant amount of money.

We agree.

A commonly referenced report by the Business Roundtable Report, backs this assertion with substantial research. The report A-3, “*Improving Construction Safety Performance: A Construction Industry Cost Effectiveness Project Report*” (1982, Reprinted 1991), makes the following observations: “The primary purpose (of the A-3) report is to demonstrate that owners have, in addition to their moral commitment, an economic incentive to help reduce the number of accidents that occur on their construction projects.” The report goes on to say that reasonable reductions in frequency and severity (of accidents) would lower construction project costs by as much as 8% of construction labor payroll.

Some of the specific recommendations include:

- Provide safety & health guidelines the contractor must follow;
We don't want the Owner acting as a policing agency for OSHA or any other regulatory agency.
- Require use of permit systems for potentially hazardous activities;
Permit systems exist with regulatory agencies. Require compliance with appropriate laws and regulations.
- Require the contractor to designate a responsible supervisor to coordinate safety on the site;
Good idea.
- Discuss safety at owner-contractor meetings;
Preconstruction meetings should have mandatory safety discussions.
- Conduct safety audits during construction;
Work zone safety and barricade compliance inspections should be conducted.
- Require prompt reporting and full investigation of accidents;
Good idea.
- Encourage training.
Good idea.

2. ARTBA Recommendation Number Two (Unrelated to Questions in the ANPRM)

Contractor Incentive Programs—ARTBA believes that incentive programs are an effective means to encourage improved safety and health performance on a job site. FHWA should create special provisions for incorporation into all federally supported roadway construction projects that provide economic rewards for contractors who meet specified performance measures related to both traffic and worker safety and health.

The extra planning that is required to implement a good safety and health program can result in better over-all project planning, thereby creating better-organized and efficient projects. In time, by encouraging contractors to plan and work more safely, the industry standard can be raised to a new level that will not only improve the health and safety of workers and motorists, but also lead to increased project savings.

DRAFT

Though on the surface, it seems to be a good idea. However, there will be an equity or fairness issue that cannot be resolved. Exposure levels increase risk for accidents. Because incentives to the contractor are a result of the behavior of a third party (the automobile driver), more difficult projects in high traffic areas will most like exclude contractors from participating in the incentives. For example, how does the contractor keep a drunk driver from passing through the work zone on a public highway?

DRAFT



American Road &
Transportation Builders
Association

Comments on Original ARTBA

Draft Provided by Taylor

AMERICAN ROAD & TRANSPORTATION BUILDERS ASSOCIATION
Bowden and Ken Brown of 3M

Traffic Control Materials

Comments on the

Division.

ADVANCE NOTICE OF PROPOSED RULE MAKING FOR WORK ZONE SAFETY

**29 CFR Part 630
(Docket No. FHWA-2001-11130)**

The American Road & Transportation Builders Association (ARTBA) provides Washington representation for the U.S. transportation construction industry. The transportation construction industry generates more than \$200 billion per year in U.S. economic activity and provides employment to more than 2.2 million Americans. ARTBA represents 5,000 firms and public agencies and is the only national association that exclusively represents the collective interests of all sectors of the U.S. transportation construction industry.

In general, ARTBA's comments on FHWA's Advance Notice of Proposed Rulemaking (ANPRM) follow the question and answer format set forth in the Federal Register Notice of Wednesday, February 6, 2002. For issues of importance to ARTBA and its members that were not addressed in FHWA's questions, additional comments appear at the end of the document.

General Questions

1. *Should there be a National policy to promote improved mobility and safety in highway construction and maintenance? If so, should the National policy be incorporated into the regulation or issued separately as guidance that outlines guidelines and best practices for implementation?*

ARTBA Response:

FHWA should take the lead in developing, issuing, and publishing a national policy on work zone safety. Inasmuch as work zone safety is a crosscutting issue within the jurisdiction of other federal agencies, FHWA should coordinate the policy, to the extent possible, to ensure it is cohesive and

DRAFT

coherent across the federal spectrum. ARTBA strongly recommends that FHWA develop its policy in concert with the Occupational Safety & Health Administration (OSHA), the National Institute for Occupational Safety & Health (NIOSH), the Federal Motor Carrier Safety Administration (FMCSA), and the National Highway Traffic Safety Administration (NHTSA), as well as other relevant agencies.

The policy should be comprehensive, and therefore would contain broad guidance, articulated in a policy document(s), as well as specific regulations implemented through appropriate rulemaking within the respective agencies of jurisdiction.

ARTBA would be strongly opposed to a work zone policy that is enacted unilaterally by FHWA. ARTBA believes that such an action would likely result in conflicts and confusion among federal agencies and the regulated community.

2. *Are the current provisions of 23 CFR 630, subpart J adequate to meet the mobility and safety challenges of road construction and maintenance projects encountered at all stages of project evolution? If they are not adequate, what are the provisions and/or sections that need to be enhanced and/or modified to ensure mobility and safety in and around work zones?*

ARTBA Response:

The current regulations are not adequate to meet the safety and mobility needs of road construction and maintenance projects. While the existing regulation provides adequate requirements for traffic control plans, other aspects of the regulations are broad and vague. These ambiguities render much of the regulation virtually unenforceable.

The industry would benefit by clearer, more comprehensive standards to provide uniformity throughout the country on high hazard issues such as:

- a. Entry and exit procedures for supply vehicles (dump trucks) between the traffic space and work space
- b. Staging of equipment and vehicles to provide barriers to traffic and noise
- c. Requirements for traffic control and pedestrian movement within the work area of the work zone
- d. Training and competencies of key personnel dealing with issues such as traffic control devices, flaggers, work zone design, and traffic flow

In all circumstances, worker garment visibility regulations should be upgraded to be in line with industry standards for conspicuity, ensuring that workers are clearly visible to motorists and equipment operators. All workers exposed to moving vehicles and construction equipment should be required to wear appropriate high visibility safety garments within the work zone.

Because of the dangers in work zones caused by changed roadway geometry, non-permanent signage, possible hazards from uneven surface conditions, and changing traffic patterns, FHWA

DRAFT

should consider more stringent standards for maintenance and levels of retroreflectivity on signs, barriers, channelizing devices and pavement markings.

3. *Should work zone regulations be stratified to reflect varying levels and durations of risk to road users and workers, and disruptions to traffic? What would be the most appropriate stratification factors (e.g., duration, length, lanes affected, Average Daily Traffic (ADT), road classification, expected capacity reduction, potential impacts on local network and businesses)?*

ARTBA Response:

Clearly, there must be some means to distinguish between the type of work being performed and the comprehensiveness and complexity of regulations covering that work. That is not to say that some types of work are to be exempted, however.

ARTBA recommends a regulatory framework, best demonstrated by a matrix. For example, a long-term project in a high speed, high traffic volume roadway should be subject to more regulation than a short-term project on a rural roadway. If however, that rural roadway has geometry that makes it dangerous, experiences high volumes of traffic during certain times of day, is subject to dangers during night time hours or ~~in~~ inclement weather, etc. then more strict regulations should apply.

In other words, ARTBA recommends a regulatory framework that cross compares the type roadway (high speed, limited access, urban, rural, two lane, etc.) with the type of work and conditions (long-term, short-term utility, weather conditions, time of day, hazard history of roadway, etc.) Based upon the cross-compared factors, the regulated community can determine the complexity and comprehensiveness of the regulation for protecting workers and motorists during that operation.

4. *Currently, there are several definitions for work zone, as defined by the MUTCD, ANSI D16 (proposed), NCUTLO and NHTSA. These definitions, even though similar in basic structure and implication, differ in length and the degree of detail addressed. Should there be a common National definition for work zone to bring about uniformity? If so, what should the common National definition be?*

ARTBA Response:

It is highly unrealistic to believe that states and local jurisdictions can improve record keeping and reporting of numbers, size, duration, incidents, injuries and fatalities related to work zones while there is not a common, national definition.

DRAFT

It is important for FHWA to take the lead in developing such a definition, in cooperation with other affected public and private organizations.

In ARTBA's experience, the best, simplest way to define a work zone is to limit it to the area between the first advanced warning sign (as required in the MUTCD—not necessarily ITS-type traffic notification signs) and the last "End Construction" sign. This is the "work zone." In our experience, most definitional problems arise when talking about incidents related to the work zone, such as traffic ~~eues~~ queues that sometimes stack before the advanced warning sign.

In ARTBA's opinion, reporting forms should have two questions: 1) Did the incident take place "within" a work zone? 2) Was the incident related to work activity in the work zone? In using this approach, we will be able to determine if the work zone activity was related to the reported incident. ARTBA anticipates that there are incidents within a work zone that are unrelated to the construction work, as well as incidents outside the work zone that are related to construction work inside the zone. ARTBA believes that a basic, easy to understand definition, with questions related to that definition would solve many of the ambiguities surrounding work zone definitions and related reporting issues.

5. *How, if at all, are impacts to road users due to road construction and maintenance part of the management and operations considerations that are addressed in transportation plan development?*

ARTBA Response:

The impact on the users due to road construction must be balanced against the need for additional capacity at present, for the duration of the transportation plan, and for the projected future, along with the operating efficiency of the roadway system for those same time periods.

ARTBA believes that simply weighing the road user impact during construction and maintenance operations, without considering short- and long-term operations and capacity needs, will result in a flawed analysis.

The only bearing user impacts should have on immediate construction and maintenance operations (once the need for such programs are established in the transportation plan) should deal with traffic control and/or diversion around the projects.

6. *To what extent should the metropolitan and statewide transportation planning processes address crosscutting policy issues that may contribute to increases in project costs (for example, the use of more durable materials, life-cycle costing, complete closure of facilities, information sharing on utilities, etc.)? Is it appropriate to consider the impact of construction and maintenance projects to road users in planning for future roadway improvements at the metropolitan level? At the statewide level? At the corridor level?*

DRAFT

ARTBA Response:

This question must be answered in context with the facility location and demographics. It may be very difficult to develop a regulation to cover this body of issues, given the variety in roadway construction and maintenance projects.

On facilities such as those that carry a large amount of traffic, serve as critical regional links in the network, or are located in areas that make construction expensive and difficult, it is important to consider costs related to user impact, life-cycle, duration of materials, etc. If a jurisdiction is considering bridge or major arterial replacements or renovations, then it is important minimize impacts over time, and consider 50-year+ life cycles.

In regions where there are alternative routes for diversion or volumes that can withstand more frequent maintenance and renovation, then extended life-cycle planning may not be so critical.

Another important factor to consider in this planning process are the safety risks to motorists and workers. There may be roadways that, while their location or volumes do not necessarily lead to longer life-cycle engineering and materials, they may pose safety threats to workers and/or motorists during construction, maintenance or renovation. The safety/risk factor is an important consideration in the planning process.

In all instances, when new construction or facility renovation is being undertaken, planners and officials should consider the maintenance and renovation needs that will arise during use and at the end of the planned life cycle. Safety and traffic management concerns should be fixed during present operations so that unnecessary unsafe, inconvenient, and expensive repairs and renovations can be avoided during the next maintenance and renovation stages.

7. *What data and methods are currently available to address the above considerations? What else would be needed to support such considerations in the metropolitan and statewide transportation planning processes? At the corridor level?*

ARTBA Response:

There are several evaluation instruments available for making such determinations, including measurements and estimations for life-cycle costing, average daily traffic (ADT), motorist delay (QuickZone), traffic speeds, and queuing sensors.

ARTBA is unaware of an established (recognized) method for measuring a jurisdiction's incident (accident) experience on a certain portion of roadway. As noted previously, accurate safety data would be an important piece of information in the transportation planning process.

8. *How can the FHWA encourage agencies to incorporate the above considerations (life-cycle cost analysis, alternative project scheduling and design strategies, etc.) in the decision-*

DRAFT

making process for evaluating alternative project designs? What are the most appropriate ways to include these considerations in project design?

ARTBA Response:

While ARTBA is opposed to extended processes and procedures that would further delay needed construction and maintenance projects, the association does believe that earlier “constructability” reviews at the design stage would allow more segments of the industry to provide feedback to ensure that projects are able to move forward with minimal delays. A regulation that encouraged involvement of the construction segment of the industry during the planning process could alleviate many delays ~~causes~~ caused by safety concerns, project sequencing, and ease of construction. Because the industry still relies heavily on the “low bid” system for competitive pricing, early involvement by the construction industry may take place through local, state and national trade associations who do not stand to benefit from pre-bid information that will constrain competitive contractors.

Once the agency has made a determination for incorporating the relevant design, strategies and practices during the planning process, they should be required to justify their decisions through a report available to the public for review.

9. *Can user cost be a useful measure to assess alternative means to design and implement work zones? What weight should agencies assign to user costs as a decision-making factor in the alternatives evaluation process? Should analytical tools, such as QuickZone, \16\ QUEWZ-98, \17\ etc., be used for the evaluation of various design alternatives and their estimated impact to the public? What other impact measures (delay, speed, travel time, crashes) should agencies estimate and use for alternatives evaluation?*

ARTBA Response:

In a “macro” sense, user cost may be one of many considerations when designing and implementing work zones, but it should not be the predominant factor; nor should excessive time and money be allocated for determining this impact.

There are other considerations that ARTBA believes need more weighty consideration, including direct project costs, project duration, worker & motorist safety, congestion and delay. Since the user costs are not borne directly by the developing agency, and the users are the ones who benefit from an improved facility, ARTBA believes that this issue is not one of the more important considerations, in most cases.

There may be some rare instances, when a roadway is adjacent to a business facility that requires minimal delay on the roadways, where the user cost may be more relevant. In these instances, the cost should be handled on a case-by-case basis, and not through federal regulations.

DRAFT

10. *Given the fact that utility delays have been cited as roadblocks to efficient project delivery, what should be done to address this issue?*

ARTBA Response:

Utility companies should be involved very early in the planning phases of roadway construction, maintenance and renovation, and should be viewed as partners on the project. By informing and involving the utilities early in the program, they may be able to synchronize their planning process to the construction process, and both will realize gains through a coordinated program.

In some instances, where a roadway construction project may be moving forward in advance of the utility's planned program, the transportation agency may consider providing loans or other forms of financial assistance to allow the utility to conduct its work in conjunction with the project, thereby avoiding later delays or utility cuts through new roadways.

11. *The current regulation specifies the requirement for TCPs for work zones, but does not address the issues of sustained traffic management and operations, or traffic enforcement methods and partnerships. Should the scope of TCPs be expanded to include such considerations? What are the most relevant practices or technologies that should be considered in planning for traffic management, enforcement and operations? What are the most appropriate ways to facilitate the inclusion of such considerations in traffic control planning?*

ARTBA Response:

ARTBA believes it is important for work zone TCP's to include elements of public communications and outreach—including real-time information, review and revision (if necessary) of the effectiveness of the TCP, and a means to enforce traffic management in the TCP. The level of detail and the complexity of the expanded TCP should be commensurate with the duration and location of the work.

In many instances of short-term work, work zone signage and traffic control as demonstrated in the MUTCD will be adequate. In other situations, where there are high-traffic volumes, a lot of non-local traffic, etc., it is important to have dynamic information, public outreach efforts, and constant review and revisions to the TCP to ensure that it is using the best means reasonable to manage the traffic through the work zone.

Additionally, traffic control planning should be broadened to ensure that worker safety and protection is considered when determining the geometry and traffic control devices to ensure that they are protected to the maximum extent reasonable. In this instance, ARTBA recommends that FHWA consider a hierarchy of traffic controls for worker protection, including (in order of protection) total closure, protective barrier, channelizing barrier, drums, cones and tubular devices.

DRAFT

To the extent feasible, clear regulations should be adopted outlining procedures for clear removal of old pavement markings and placement of new markings to ~~safety~~-guide motorists safely through the work zones.

12. *Should TCPs address the security aspects of construction of critical transportation infrastructure? Should TCPs address the security aspects of work zone activities in the vicinity of critical transportation or other critical infrastructure?*

ARTBA Response:

When appropriate, the TCP should address security aspects, not only of critical transportation infrastructure and linkages, but also concerns of nearby offices, installations, military bases, government facilities, etc. that may be critical to national security.

In this regard, aspects of construction should not only be concerned with security, but also with public safety, such as construction on critical facilities during hurricane season in the East Coast and Gulf states.

Commensurate with the need of the roadway and/or the adjacent facilities, TCPs should have contingency plans to modify construction activities and allow traffic to move through the work zone expeditiously if needed.

13. *How should TCPs address ADA requirements?*

ARTBA Response:

In urban areas where the duration of the project is more than two-days, the TCP should provide for safe and ~~convenience~~-convenient passage for pedestrians, cyclists, or other non-motorist transportation needs in line with ADA requirements for permanent facilities.

~~In all circumstances, worker garment visibility regulations should be upgraded to be in line with industry standards for conspicuity, ensuring that workers are clearly visible to motorists and equipment operators.~~

~~Because of the dangers in work zones caused by changed roadway geometry, non-permanent signage, possible hazards from uneven surface conditions, and changing traffic patterns, FHWA should consider more stringent standards for maintenance and levels of retroreflectivity on signs, barriers, channelizing devices and pavement markings.~~

14. *Should more flexibility be allowed on who develops TCPs--State DOTs, municipalities, contractors or law enforcement agencies--and how should the responsibility for developing TCPs be assigned? Should certification be required for TCP developers? How can the owners and contractors share the roles, risk and rewards in developing TCPs and implementing and operating work zones?*

DRAFT

ARTBA Response:

In many cases, the development of the TCP should be a collaborative process between the designer, the owner/agency, and the constructor. Each of these parties has a unique perspective on how and why the TCP should be developed, including the strength of the design and sequencing of work, the impact on the motoring public and the constructability and schedule of the plan.

As noted previously, on a “low-bid” project, an association, consultant, or non-bidding contractor may represent the contractor group, as the TCP is often developed before the bid stage. Another approach would be to negotiate the TCP after the contract is awarded.

Certification of TCP designers would not be necessary if a consultative process were to be used. Some type of certification or “competent person” requirements may be useful for large, high-visibility, high-cost, high-volume projects.

For liability reasons, many ARTBA members ~~have expressed concerns that they are often reluctant to change a TCP, once developed by the government agency, for liability reasons.~~ There are precedents where the contractor has been made liable for accidents occurring in a work zone when the contractor, in good faith, sought and received a modification to the TCP. In other instances, compliance with a government-prescribed TCP has served as a shield from liability. In order for the industry to collaborate—and as a result develop better TCPs—the regulations will have to address the liability issue for participating, private sector parties.

Traffic Control Plans should be developed by certified engineers who have the skills and knowledge to design TCP’s which address both the safety needs of the motorist, as well as mitigating the worker safety risks associated with work zone design.

15. *To ensure roadway mobility and safety and work area safety, should mobility and safety audits be required for work zones?*

ARTBA Response:

Yes. The frequency and depth of the audit, however, should be linked to the hazardous nature of the project. For any project, regular and frequent audits of the traffic control devices should be conducted. If a person is competent (and this regulation should determine what “competent” means), the constructor need not have “3rd party” or “independent” audits. A competent person on staff should be able to conduct the audit.

This audit procedure should be developed through, or in conjunction with the TCP.

16. *How can we better communicate the anticipated work zone impacts and the associated mitigation measures to the public? Who--the State, local government, contractor, or other agency--should be responsible for informing the public?*

DRAFT

ARTBA Response:

As with our response to other aspects of this ANPRM, the level and detail of a public awareness program is dependent on the impact, size and duration of the project. For those large, long-term, and/or high hazard projects, public communication and outreach should begin while the project is in the design phase to ensure that the public is familiar with the project and its impact on their daily lives.

As the project progresses, it will be up to different parties to communicate to the public, depending on the activity. For those long-term projects, it should be the owner/government's responsibility to provide an overall public communications project, as they will be the only party involved from beginning to end.

During certain construction phases, where the contractor has control over day-to-day operations, that company will be better positioned to provide real-time public communications through changeable message boards and signage concerning changes, delays, etc.

Funding for these communication programs must be clearly defined and published in the contract documents.

In most cases, the communications program should be a coordinated effort between all parties involved in the project.

17. *Should projects with substantial disruption include a public communication plan in the project development process? If so, what should such a plan contain?*

ARTBA Response:

Yes. The plan should contain 1) the phases of the public communications program, 2) a coordinated message for each phase, 3) the party responsible for conducting the program at each phase, 4) a process for modifying the program, and 5) a crisis communications component for unforeseen instances.

18. *Should States and local transportation agencies report statistics on the characteristics of work zones (such as number of work zones, size, cost, duration, lanes affected, ADT, road classification, level of disruption and impacts on local network and businesses) to appropriate State or Federal agencies? If so, in what ways do you think this would be beneficial?*

ARTBA Response:

It would be useful for FHWA—or another national organization—to provide a platform where for all the statistics noted in the ANPRM, plus relevant accident/incident data, to be reported, compiled

DRAFT

and sorted in a standardized format. Such a program would enable interested parties to know how roadway construction programs will impact them, their families and their businesses.

Such information would be very useful to track successful programs, potential high-hazards areas, traveler delay, industry market trends, and type of construction taking place in the various jurisdictions.

It would help motorists make better informed travel plans; help the industry to track the breadth and type of work being conducted; predict and mitigate areas where safety problems may arise; and plan for future transportation needs.

19. *Should States and local transportation agencies report statistics on the mobility performance of work zones? Are typical mobility measures, such as, delay, travel time, traffic volumes, speed and queue lengths appropriate to analyze work zone mobility performance? What are the top three measures that are most appropriate?*

ARTBA Response:

For this question, ARTBA raises the response, what would FHWA do with this data? It seems that the relevant jurisdiction will know whether or not their TCP and work zone mobility efforts are working or not, depending upon these measures (delay, travel time, volumes, etc.). It seems that the local motorists and businesses will be most effective in putting pressure on the agency to improve work zone performance. We do not think FHWA or the federal government is ready to enforce a base level of compliance, and ARTBA strongly opposes restrictions on the allocation of federal funding to the states for surface transportation projects as a means to achieve compliance with other policy objectives.

It would be useful, however, to have a better, more standardized method for reporting work zone related incidents. This would help national, state, and local organizations better understand and mitigate against deaths and injuries in work zones in the future.

20. *Are the currently used measures for safety (typically, crashes, fatalities and injuries) appropriate to analyze work zone performance? If not, what other measures should be considered? Are current mechanisms for collecting this information adequate? If not, how can we improve them?*

ARTBA Response:

ARTBA believes that the largest problem with measures for safety is not necessarily the “categories” (crashes, fatalities and injuries), rather the inconsistency with which the data is collected. It is understandable, to some degree, that the federal government does not want to

DRAFT

dictate to the states the manner in which they should collect data concerning incidents related to work zones. (The states are probably not too fond of such mandates either.) On the other hand, it is extremely difficult to craft national programs and assistance when we do not have a clear understanding of what is causing the incidents, nor a standardized means to collect that information.

ARTBA believes that at a minimum, FHWA should determine, through regulation, a target date for a standardized method to collect and report safety performance data on a national basis. FHWA could allow that method to be developed through a consensus proceeding (such as an AASHTO committee, or through the ARTBA/AASHTO/AGC joint committee), with a “threat” that a mandatory system will be implemented through regulation if a national consensus is not achieved by a date certain.

ARTBA believes that until we set a nationally standardized means for defining a work zone, and reporting incidents related to work zones, it will be difficult to reduce crashes, fatalities and injuries, and mitigate the costs associated with them, at a national level.

1. ARTBA Recommendation Number One (Unrelated to Questions in the ANPRM)

Unit Bid Pricing and Model Contract Specifications for Safety—To help ensure roadway construction work zones are as safe as possible, the use of unit bid pricing for safety items in all federally-funded road contracts should be required. Many contractors want to do the “right thing” and set up the safest work zone feasible. Nevertheless, the increased safety measures cost money to buy, set-up properly and maintain. In the low bid contract award system used in the vast majority of roadway construction projects, the conscientious contractor is likely to be underbid by one who has less regard for worker and motorist safety. ARTBA recommends that model contract specifications, special orders, and unit pricing for safety items be developed and included in federally supported roadway construction contracts. This will level the playing field for those contractors who place a high priority on safety.

The concept of “owner involvement” in all aspects of safety is an old idea in other areas of construction. Once owner involvement and commitment are well established, safety practices such as contract specifications and unit bid pricing can save the owner (DOT) a significant amount of money.

A commonly referenced report by the Business Roundtable Report, backs this assertion with substantial research. The report A-3, “*Improving Construction Safety Performance: A Construction Industry Cost Effectiveness Project Report*” (1982, Reprinted 1991), makes the following observations: “The primary purpose (of the A-3) report is to demonstrate that owners have, in addition to their moral commitment, an economic incentive to help reduce the number of accidents that occur on their construction projects.” The report goes on to say that reasonable reductions in frequency and severity (of accidents) would lower construction project costs by as much as 8% of construction labor payroll.

DRAFT

Some of the specific recommendations include:

- Provide safety & health guidelines the contractor must follow;
- Require use of permit systems for potentially hazardous activities;
- Require the contractor to designate a responsible supervisor to coordinate safety on the site;
- Discuss safety at owner-contractor meetings;
- Conduct safety audits during construction;
- Require prompt reporting and full investigation of accidents;
- Encourage training.

2. ARTBA Recommendation Number Two (Unrelated to Questions in the ANPRM)

Contractor Incentive Programs—ARTBA believes that incentive programs are an effective means to encourage improved safety and health performance on a job site. FHWA should create special provisions for incorporation into all federally supported roadway construction projects that provide economic rewards for contractors who meet specified performance measures related to both traffic and worker safety and health.

The extra planning that is required to implement a good safety and health program can result in better over-all project planning, thereby creating better-organized and efficient projects. In time, by encouraging contractors to plan and work more safely, the industry standard can be raised to a new level that will not only improve the health and safety of workers and motorists, but also lead to increased project savings.

DRAFT

Brad,

I appreciate all of the hard work you and your committee have put into drafting your response. I may be way off base, but I have some serious problems with the ARTBA response in a number of areas.

First, I really don't believe we need any more Federal oversight of the work zone or any other area for that matter. I wish they would give us our money and have minimal involvement from that point on. When a problem arises on a construction project, it is difficult at best to obtain answers from a state DOT without having to get answers or variances from FHWA. At least I know who can give an answer at the state level!

Comments on General Questions:

1) I have no problem with FHWA promoting and encouraging safety in the work zone, but we don't need federal regulation. I agree that we don't need conflicting regulation/ guidelines between different federal agencies. Certainly, we need nothing that is enacted unilaterally by FHWA. If a state does not have an effective MOT safety program for work zones let the people in that state chapter work to better their program.

2) A mandated training program for a work zone traffic/MOT/safety coordinator is required in most states. That seems to work fine. PLEASE DO NOT suggest a mandated program for flagger training. Let states decide how to best do this. It is the responsibility of each and every contractor to place competent, trained people out as flaggers. Let each contractor provide training to his satisfaction. Flaggers are often changed from day to day and someone lacking the proper "certification" regardless of his competency might lead to a job being shut down.

3) I would agree that we could have a standard definition for work zone as a means for keeping statistics.

4) Work zone impacts on road users and adjacent businesses cannot be ignored. If the public becomes unhappy with how we are handling traffic through a work zone they are not bashful about letting us know. Again, local and state officials can handle this much better than the Feds.

5) I would recommend staying away from comments involving life-cycle costing. That opens a real can of worms. Safety is a very real consideration when planning any project.

6) I cannot imagine a federal regulation involving "clear removal" of pavement markings. I know of nothing short of re-paving that will provide clear removal.

7) We do not need any federal regulation in development of TCP's. Please don't suggest negotiating with the low bidder for costs associated with a TCP after contract award. We don't need to bastardize the low bid system in this fashion.

8) Contractors don't need any more audits.

**Comments
from ARTBA
Florida State
Chapter (with
a lot of "me
too's" from
other state
chapters).
This dialogue
took place
over ARTBA's
State Chapter
ListServ.**

9) Public communication programs are good. The state and local officials can best determine this.

10) I am in favor of unit pricing for MOT items. We don't need a "model" federal contract to tell us how to do that.

11) With incentive programs come regulation. Let the state do an incentive program if they want it.

I guess you can see my perspective is for state and not federal control. I'm sure many may disagree, but I can't imagine most contractors wanting more Federal regulations.

Bob Burleson
Florida Transportation Builders' Association

Amen to Bobby's Comments.

We simply do not see a problem that needs fixing.

Contractors have an enormous stake in the safe operation of their work zones,

Where problems occur, it's usually due to DOT's forcing contractors to work under unreasonably tight deadlines, under traffic, and often at night, when safety is a far more difficult challenge.

Tom Walker
Wisconsin Transportation Builders Association

Brad,

I too feel that the State should be the one setting the direction. I agree with everything Bob has said and would encourage ARTBA to make some major modifications to the response.

Richard D. Daugherty, III
Virginia Road & Transportation Builders Association

Brad:

I am in complete agreement with Bob Burleson's comments.

Thanks,

Therol Brown
Georgia Highway Contractors' Association

Sorry to be so late in my response. I totally agree with Bob Burleson's comments. We do not need more federal involvement. It is not broken in our state so we prefer not to let the federal gov't. fix it for us.

Berry Jenkins
North Carolina Highway Division Director
Carolinas AGC

P.O.Box 30998
Raleigh,N.C.
919-781-3270,ext.5723
fax 919 787-7323

What Bob said!!!

Don Richardson
Mississippi Road Builders Association

Mr. Joseph P. McAtee, P.E.
1613 Thistlewood Drive
Washington Crossing, PA. 18981

**Comments on Original ARTBA
Draft Provided by Joseph
McAtee, Engineer**

May 13, 2002

Email Attachment To: Brad Sant @ ARTBA

Dear Brad: In response to your call for comments on the FHWA's emerging rule making regarding traffic control in work zones, I wanted to offer some input. As an owner of an engineering firm that specializes in design, inspection and CM for highway and bridge projects in 6 states, these issues are very important to all of us and I appreciate you taking the lead in responding. Some additional comments are as follows:

1. Question 8's answer correctly identifies 'constructability' as a good task to improve the biddability of projects. My firm has one of PennDOT's first open-end contract for constructability and have found that the state gets about a 25-1 return on every dollar invested in our service. This is such a big return it should prompt the FHWA to require all states to do this type of review on all jobs that, say, are 1 Million and above. Of course much of the review focus is on issues of safety, such as night time operations and phasing, access points to the work, clearance to workers and equipment, etc. All provide by my staff of former state resident engineers and former contractors with significant field experience.
2. On the main topic of safety in work zones, I would recommend that ARTBA take a position that the use of ITS technology should be used in work zones now. When I lectured at a couple of PennDOT winter schools for their inspectors, there was broad agreement that the main thing of concern was traffic speed. This can now be controlled using intelligent systems similar to the photo-radar systems some states are using for red-light-running at intersections. The problem I've found about using this in work zones is that the political folks don't want to promote it because they fear a loss of votes. This may be a good opportunity to have ARTBA and the FHWA take the 'brunt of being the bad guys' and get something done in this regard.

Just think of the potential saving in lives, to say nothing of the great reduction in costs for not having troopers at each major project's work zone. Think of these things on a national scale for, say, over ten years. Let's conservatively predict that 20% of our national total of over 775 work zone fatal accidents are saved. That would be about 150 lives saved per year and would equal over 1500 lives saved over a ten-year period. TO say nothing of the enormous cost of litigation which I have heard some insurance folks comment that a traffic fatality has a cost of about 1.5 million to the overall community. Just do the math and we can see that if this type of reduction is possible, we really can't just dismiss it.

The basic system could be set up for high-speed roads and inter-states and maybe all night work. If a speeder enters the work zone over the speed posted – he simply gets a very large ticket. If he leaves the work zone still speeding he gets a second ticket of maybe greater size, and maybe points or other penalties. There may be some legislation needed in various states to do this but with the potential of saving so many lives and the enormous cost savings, it sounds like the construction community should step up to the plate and make this happen.

As the owner of my firm that lost 2 good employees to a work zone crash I hope you folks do everything you can to promote work zone speed reduction in a very rigorous manner.

3. Regarding night operations, since these have been broadly used in more and more areas, I believe that the FHWA should develop guidance on traffic control at night. Right now the states use their standard publications and I believe the documents do not address the difference between night and day work. Things are different at night and this should be reflected in longer patterns, perhaps more frequent signage, or larger signage. Night hours also require us to deal with a different profile of driver. One that can't see as well as during the day, is more likely to be confused entering a work zone, one that has a bad reaction to glare from light plants etc. Also, we have to deal with drivers that are probably more impaired by alcohol or other substances than the daytime drivers. All of this has an effect on what should go into the TCPs when they are developed. I'd recommend there should be stand-alone nighttime TCP guidance in each state to address this issue.

Brad, Thanks for letting me offer these comments and good luck quarterbacking a response to the FHWA. Should you have any questions regarding the above, I can be reached at Urban Engineers, Inc. at 215-922-8080.

I was disappointed to read Bob's comments regarding the draft ARTBA response.

The federal government provides approximately \$30 billion a year to states to support interstate maintenance and highway construction. In a low-bid environment the ONLY way to ensure a minimum level of safety is to make "safe practices" a requirement within the bid process. The motorist, who pays the funds into the HTF making that \$30 billion possible, has a right to expect projects are undertaken in a safe and efficient manner.

**Comments on Original
ARTBA Draft and Florida
Chapter Response by Rob
Dingess, ATSSA**

Florida has one of the more progressive sets of rules governing work zone training. However, many people who live in Florida also drive to other states to visit grandchildren etcetera. Why shouldn't motorists be able to presume that when traveling on a federal-aid roadway that there are minimum levels of safety and efficiency practices incorporated into work zone projects regardless of the State.

In the transportation arena the federal government has led the way in setting federal standards. The entire interstate system was a "subversion" of states rights by the federal government. The federal MUTCD sets a minimum standard for the manner in which roadway devices will be utilized to make the roadway safer. It is a little late in the game to argue that we should simply leave these issues to the states. The question now should be: What minimum levels of standards should be required on federal-aid systems? The ARTBA comments as originally drafted certainly moves us in the right direction. A direction, by the way, that would leave most of the nation scrambling to catch up to the fine standards practiced by the transportation industry and public officials in the state of Florida.

Robert N. Dingess
American Traffic Safety Services Association

Brad,
This comment comes from
PENNDOT.

Brian Fraley
Associated Pennsylvania Constructors

**Comments on Original
ARTBA Draft Provided by
PennDOT through ARTBA
Pennsylvania Chapter**

Subject: RE: [artbasafmgt] ARTBA **Draft** Comments of FHWA's ANPRM for
Work Zones

I read the draft and have one comment. ARTBA's second recommendation should include state agencies. Incentives should be given to State DOTs to incorporate in the contracts safety/worker protection items such as concrete barrier, crash trucks, etc.